

On the Biology of *Acanthochalcis nigricans* Cameron and *Acanthochalcis unispinosa* Girault (Hymenoptera: Chalcididae)

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Abstract.—The biological information for the genus *Acanthochalcis* Cameron is reviewed. Rearing and habitat information is presented, recording the emergence from beetle infested wood of *A. nigricans* Cameron from interior live oak (*Quercus Wislizenii* A. DC.) and of *A. unispinosa* Girault from valley oak (*Quercus lobata* Nee). The probable hosts proposed for both species of *Acanthochalcis* are beetles in the family Buprestidae (Coleoptera).

The two *Acanthochalcis* Cameron are the largest members of the family Chalcididae in North America. The recorded range is: *A. nigricans* Cameron—Kansas, Oklahoma, Texas, New Mexico, Arizona, California and Mexico; *A. unispinosa* Girault—Texas, Arizona and California (Burks, 1979). Prior to this paper, host information was virtually nonexistent; being restricted to a statement by Alexandra A. Girault (1920) of a small female *A. nigricans* which was reared from a flat-headed apple borer in Phoenix, Arizona, 21 September 1915, by A. W. Morrill. This host has been interpreted as *Chrysobothris femorata* (Olivier) (Coleoptera: Buprestidae) (Peck, 1963). Adults of *C. femorata* measure about 8 mm in length. This apparent host record was not listed in Burks (1979).

A. nigricans females have been measured that range in length from 7 to 24 mm, but are usually about 20 mm. Males range in length from 8 to 11 mm, but are usually about 10 mm. *A. unispinosa* females have been measured that range in length from 17 to 27 mm, but are usually about 21 mm. Males range from 5 to 11 mm, but are usually about 10 mm. Males and females are not as drastically dimorphic in body size as inferred by the body length measurements, because about one-half of the female length is attributed to the posteriorly projecting ovipositor sheath. While it is possible that *Acanthochalcis* could successfully develop within the larva of *C. femorata*, metamorphosing into a very small adult, the more common large sized adults would indicate a host larva substantially larger.

Recently, a single male specimen of *A. nigricans* (11 mm) was reared from interior live oak (*Quercus Wislizenii* A. DC.) wood cut on 10 January 1983, from a steep rocky hillside of Little Table Mountain (Valley Grassland/Foothill Woodland Ecotone), Madera County, California. The wood, cut into 18 pieces, 22 to 48 cm in length and 5 to 10 cm in diameter, was held outdoors in a sealed cardboard box and checked periodically for insect emergence. Adults of *Dicerca horni* Crotch (Coleoptera: Buprestidae) and larvae of *Dicerca* sp. were collected

when the wood was cut. On 31 August 1983, the chalcidid was found dead in the box after having emerged from the most heavily cracked and scarred area of a 10 cm diameter trunk. The round emergence hole was 2 mm in diameter and extended through 8 mm of wood and 3 mm of bark. Excavation of the emergence burrow to obtain the chalcidid's larval and pupal exuvia, and to locate host remains, was unsuccessful. Other insects reared from this lot of wood were *Dicerca horni*, *Polycesta californica* LeConte (Coleoptera: Buprestidae) and *Prionoxystus robiniae* (Peck) (Lepidoptera: Cossidae). Of these, the probable hosts are *D. horni* and/or *P. californica*.

Rearing of valley oak (*Quercus lobata* Nee) from Mooney Grove (Foothill Woodland—a remnant stand of the valley floor oak parkland), Visalia, Tulare County, California, produced both a male (10 mm) and female (18 mm) *A. unispinosa* which emerged on 15 and 29 April 1982 respectively. Several 5 to 8 cm diameter limbs, which had fallen from a height of 5 to 7 m, were collected in late March 1982 and kept indoors in metal trash cans and checked daily. The only buprestid reared from this wood was *P. californica*, five specimens of which emerged between 21 April and 24 May 1982. Although doubtful as hosts, *Phymatodes lecontei* Linsley, *Xylotrechus nauticus* (Mannerheim) and *Neoclytus modestus* Fall (all Coleoptera: Cerambycidae) were also reared from this lot of wood.

While this biological information supports Girault's statement suggesting a probable host, the question remains whether the *Acanthochalcis* were reared from the buprestid beetles or just associated with them, in that these insects emerged from the same piece or lot of wood.

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